WisDOT RD&T Home

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Putting Research to Work

WisDOT RD&T E-Newsletter, October 2004
Technical information for state DOT highway professionals
Prepared by CTC & Associates LLC

Research World

Register Now for 2005 TRB Annual Meeting

If you're planning to attend TRB's 84th Annual Meeting in January, register by Nov. 30 to take advantage of the lower advance registration fees. The meeting announcement includes information on hotel reservations, workshops, schedules and special events. The meeting will take place Jan. 9 to 13, 2005, in Washington, D.C. Visit the Annual Meeting Web site at http://www.trb.org/meeting/ for details and online registration. Courtesy of the TRB E-Newsletter.

European Technique Will Strengthen D.C.'s Oldest Bridge

The oldest bridge in Washington, D.C., will be rehabilitated starting this fall with the help of a European technique that will bring it up to modern standards while preserving its historic integrity. The 173-year-old span will be preserved with the Archtec method, which involves placing stainless steel anchors in cored holes within the bridge's masonry arch. See http://www.ddot.dc.gov/ddot/cwp/view,a,1252,q,618537,ddotNav_GID,1610.asp, and learn more about the method at http://www.cintec.co.uk/en/applications/Archtec/index.htm.

GPS Eyed for Trip Charging, Speed Enforcement in the UK

As a way to combat traffic congestion, the United Kingdom's Commission for Integrated Transport has suggested a GPS system that could identify vehicles from above and charge drivers for each trip based on traffic levels, journey times and length. See the article at Northern Ireland's 4NI.com at http://www.4ni.co.uk/industrynews.asp?id=33518.

Nordic Road Research Newsletter Looks at Asphalt, Safety

The latest issue of Nordic Road and Transport Research profiles Danish success using recycled colored glass as asphalt aggregate. Other articles feature a new handbook on road safety measures, new research from Denmark on noise-reducing asphalt pavement designs, and more. See http://www.vti.se/Nordic/.

Auto Windshields and Motorcycle Safety

BIKE magazine, a best-selling UK publication, investigates whether the larger windshield pillars being built into many of today's cars diminish drivers' ability to notice motorcyclists in the blind spot, and makes the case for more responsible auto design. Read the article at http://www.safespeed.org.uk/bike.pdf.

To receive notice of **Putting Research to Work** each month, e-mail wisdotresearch@dot.state.wi.us.
Previous issues are available at http://www.dot.wisconsin.gov/library/publications/format/newsletters/rdt.htm.

Other e-newsletters for transportation professionals:
TRB E-Newsletter from the Transportation Research Board: http://gulliver.trb.org/news/.
The AASHTO Journal from the American Association of State Highway and Transportation Officials: http://www.transportation.org/publications/journal.nsf.
CTS Research E-News from the University of Minnesota: http://www.cts.umn.edu/publications/enews/.
Texas Transportation Researcher from TAMU's Texas Transportation Institute: http://tti.tamu.edu/researcher/.
Austroads Newsletter from Austroads: http://www.austroads.com.au/newsletter.html.
Transportation Communications Newsletter: http://groups.yahoo.com/group/transport-communications/.

Designing for the Future

Marquette Interchange Enhancements Reflect Area's History

Among the community-sensitive design enhancements in WisDOT's expansive Marquette Interchange project are a set of unique elements reflecting the area's African-American heritage and its role in the Underground Railroad. The Walnut Street bridge will include ceramic tiles and decorative ironwork fencing bearing African adinkra symbols, and bridge abutments at Fond du Lac Avenue will feature cast concrete-relief murals. Learn more at the project's new Web site: http://www.mchange.org/page.jsp?&key=rhh.

WisDOT Contractor Honored for Environmental Efforts

Edward Kraemer & Sons was recognized last month for excellence in environmental protection and mitigation for its bridge replacement work on WisDOT's US 12 project in Sauk City. The Plain, Wis., general contractor received a Globe Award from the American Road & Transportation Builders Association for its work protecting the area's bald eagle habitat. Read the press release at http://www.edkraemer.com/news/news_detail.asp?id=118, and learn more about the project at http://www.dot.state.wi.us/projects/d1/us12/index.htm.

A Florida Feat: Widening a Segmental Fly-Over

Construction crews in Florida's Miami-Dade County recently completed a very unusual task: the widening of a segmental fly-over bridge that doubled its 29-foot width. The 3,000-foot precast concrete, segmental box highway overpass was widened from one lane to two with paved shoulders, the first project of its kind in the continental United States. Read about the bridge's design in the *Engineering News-Record* at http://enr.construction.com/news/transportation/archives/040902.asp.

'Talk Truck' Hits the Road to Gather Public Input

Faced with inconsistent attendance at public meetings held to gather project input, Utah DOT took to the streets with meetings for the state's new Mountain View Corridor. A mobile billboard became a meeting place for nine outdoor neighborhood gatherings to discuss proposed alternatives for the project. Read more in UDOT's newsletter at http://www.sr.ex.state.ut.us/index.php/m=c/tid=723.

Oregon Bridge Program Fosters Environmental Efficiencies

Oregon DOT's comprehensive Bridge Replacement Program aims to replace or repair more than 350 aging bridges by 2013. Its large scope allows ODOT to capture economies of scale with programmatic approaches to design steps, including batch permitting, mitigation banking and setting consistent environmental performance standards. Read more in FHWA's Successes in Streamlining newsletter at http://environment.fhwa.dot.gov/strmlng/newsletters/sep04nl.htm.

Traffic Calmed, But Also Delayed

New York DOT's evaluation of a pilot restriping project concluded that the traffic calming benefits of converting one lane of State Route 5 in Hamburg to a center turn lane were outweighed by delays and operational issues. The new configuration, which also aimed to ease left turns, did not provide clear-cut safety benefits, and the DOT plans to restore the road to two travel lanes in each direction this month. Read the press release at http://www.dot.state.ny.us/news/2004/r5/0920.shtml.

Bubble Curtain Makes Bridge Construction Easier on Fish

The underwater shock waves produced during pile driving operations can kill fish in the wake of a bridge construction project. Oregon DOT addressed this problem on a recent project using a bubble curtain, a tube placed around a pile that dissolves waves created during driving. Read more in *Better Roads* at http://www.betterroads.com/articles/aug04c.htm.

Construction and Materials Innovations

WisDOT to Try Bobsled Next Year

Next season WisDOT will try the "bobsled," a paver-mounted, joint-cutting blade developed by Iowa State University's Bob Steffes (see "Iowa Employs Innovative Sawing" in the May/June *Public Roads* at http://www.tfhrc.gov/pubrds/04may/06.htm). The blade cuts a narrow longitudinal joint in fresh concrete, creating no dust and requiring less construction time. Site and schedule for the Wisconsin application have yet to be determined. WisDOT's John Volker will lead the effort; reach him at john.volker@dot.state.wi.us.

FHWA Spotlights Wisconsin Anti-Stripping Research

The September issue of FHWA's *Research and Technology Transporter* (see http://www.tfhrc.gov/trnsptr/sep04/index.htm#pave) cites an asphalt conference presentation by UW-Madison's Hussain Bahia on the effectiveness of anti-stripping additives in HMA. Bahia recently delivered a research report (0092-01-03) on HMA moisture damage and anti-stripping agents to WisDOT's Wisconsin Highway Research Program. See the full report and a brief at http://www.dot.wisconsin.gov/library/research/reports/asphalt.htm.

New NCHRP Report Shows How to Build with Geofoam

Formerly a pavement insulator, geofoam—molded blocks of expanded polystyrene—is a durable, lightweight soil-substitute material for roadway embankments and bridge approaches. NCHRP Report 529 (see http://trb.org/publications/nchrp/nchrp_rpt_529.pdf) offers standards for geofoam materials, construction, and site preparation, as well as design guidelines. Researchers used blocks provided by Wisconsin EPS of Fond du Lac. The report comprises Appendices B and C of the full study, NCHRP Web Document 65; available at http://trb.org/publications/nchrp/nchrp_w65.pdf.

Minnesota Announces Findings on Asphalt Thermal Cracking

The September CTS Research E-News reported on University of Minnesota research on thermal cracking in asphalt. Results include data on the impact of temperature and binder selection on fracture properties, and a new model for prediction that improves upon the AASHTO method. See http://www.cts.umn.edu/news/renews/2004/08/index.html#pavement.

Perpetual Asphalt Gets Foothold in Concrete-Heavy Illinois

When heavy trucking finally drove Interstate 70 in Illinois to failure, the asphalt industry lobbied against IDOT's concrete culture for an alternative. IDOT committed nine of 20 miles to polymer-modified asphalt over rubblized concrete when the Illinois Asphalt Pavement Association offered a 20-year warranty. See the article in *Roads & Bridges* at http://www.roadsbridges.com/rb/index.cfm?powergrid=rfah=|cfap=&CFID=80155&CFTOKEN=20155737&fuseaction=showArticle&appDirectory=rb&articleID=5427.

VTRC Finds Self-Consolidating Concrete Needs No Vibration

The Virginia Transportation Research Center recently posted a brief on its evaluation of self-consolidating concrete. Findings include: SCC can compact well without external vibration; air content can be manipulated to improve freeze-thaw shrinkage; and water content and aggregate size and amount can be adjusted to effectively mitigate high drying shrinkage. Read more at http://virginiadot.org/vtrc/briefs/03-r13rb/default.htm.

A Little Crushed Stone Goes a Long Way

A new TRB "Research Pays Off" report posted last month summarizes Louisiana research on stone interlayer pavement systems. Effective in fighting reflection cracking on low-volume roads over soil-cement bases, these layers of crushed stone help LDOT reduce imports of high-quality aggregate. See http://trb.org/publications/trnews/rpo/rpo.trn233.pdf. Courtesy of the TRB E-Newsletter.

Operating/Optimizing the System

Mark Your Calendars for Telephone, Internet Seminar

The National Transportation Operations Coalition and FHWA's Office of Operations have created a series of free monthly "Talking Operations" seminars, conducted via telephone and Internet, to educate transportation professionals on current trends, tools and noteworthy practices in operations and Intelligent Transportation Systems. The first seminar, "Transportation Operations: The Impact on States, Municipalities and Regional Agencies," is from 1 to 2:30 p.m. Eastern Time Oct. 27. Participation is limited to the first 100 registrants. Read more at http://www.nawgits.com/ntoc/talkingoperations_announce.htm, and learn about upcoming seminars at http://talkingoperations.webex.com.

Minnesota, Colorado Take Different Approaches to Roadside Memorials

Minnesota DOT in June established a policy to remove roadside memorials and in September began taking the crosses, signs and other remembrances from the state right-of-way. A *Duluth News-Tribune* article reports the public response to the policy change; see http://www.duluthsuperior.com/mld/duluthsuperior/9734279.htm. Meanwhile, Colorado DOT recently rolled out its Roadside Memorial Signing Program, which allows families of state highway crash victims to pay a $100 fee to erect a state-issued memorial sign. A *Rocky Mountain News* article explains the program at http://rockymountainnews.com/drmn/local/article/0,1299,DRMN_15_3169329,00.html.

Nebraska's N-View Keeps Travelers Informed

Thanks to funds provided by FHWA through the National Scenic Byways Program, Nebraska motorists will be kept in the know when it comes to changing weather conditions. The 30 information kiosks—called N-View—combine weather and tourism information. Read about the state-of-the-art tool in *Research & Technology Transporter* at http://www.tfhrc.gov/trnsptr/sep04/index.htm#plan.

Kansas Crash Records Now Available Online

Kansas Highway Patrol in September launched an online crash log, updated by dispatchers as information is received from troopers at crash scenes. The information is searchable by county, date or type of crash. Read about the crash records management feature in *Government Technology* (see http://www.govtech.net/news/news.php?id=91378), or check out the crash log site at https://www.accesskansas.org/khp-crashlogs/index.do. Courtesy of Transportation Communications Newsletter.

CDOT to Reexamine Highway Sign Program

Colorado DOT's 14-year-old Tourist Oriented Directional Signing Program and the contractor overseeing the program are the subjects of intense study by department officials. Businesses listed on the signs are expected to derive a major portion of their income from travelers, but some of the companies advertised lack a clear tourism connection. Read the *Denver Post* article at http://www.denverpost.com/Stories/0,1413,36~53~2407236,00.html.

Syracuse Traffic Signals Cut Delays, Emissions

The city of Syracuse, N.Y., uses optimized traffic signal control strategies that cut delays and emissions. The city introduced a computerized signal timing system to its network of 145 intersections and realized a 14 to 19% decrease in delays. From the ITS Benefits and Costs Database: http://www.benefitcost.its.dot.gov/ITS/benecost.nsf/ByLink/BOTM-September2004

Weather Management Lessons Learned from Five DOTs

A summary report on a collaborative study of five state road weather management strategies is available on the TFHRC Web site. Read about the lessons learned in Pennsylvania, Nevada, Utah, Iowa and New York, where researchers worked with Road Weather Information Systems in an effort to improve road weather operations. See http://www.tfhrc.gov/its/pubs/04101/index.htm.

Safe Travel/Smart Travel

AAA, Agencies Implement Intersection Safety Strategies

AAA Wisconsin and several government agencies are partnering for a unique initiative to study and improve 15 high-crash urban intersections in Milwaukee County. The "Road Improvement Demonstration Program" is a public-private partnership pioneered by AAA in Michigan that implements intersection safety research by NCHRP and other programs to reduce crashes through targeted safety assessments and cost-effective engineering improvements. Read more in *AAA Wisconsin News* at http://www.autoclubgroup.com/wisconsin/promos/Crash_Reductions.asp.

FHWA Releases DYNASMART-P Traffic Planning Tool

This new tool uses simulation-based dynamic network assignment models and traffic simulation models to predict the evolution of traffic flows based on the decisions of individual travelers seeking the best paths through a simulated region. See the article in *Research & Technology Transporter* at http://www.tfhrc.gov/trnsptr/sep04/index.htm#traffic.

'Self-Aligning' Sensors May Improve Driver Safety

BAE Systems, Celoxica Ltd. and Medius Inc. have announced a novel software approach to sensor integration that allows for optimized performance of collision avoidance, pre-crash and other automotive safety systems. Read the press release at http://home.businesswire.com/portal/site/google/index.jsp?ndmViewId=news_view&newsId=20040927005821&newsLang=en.

New ITS System Will Serve Kansas and Missouri

The $43 million Scout system operated by Kansas and Missouri DOTs uses closed-circuit video cameras, traffic sensors, e-message boards and highway advisory radio for safer, faster commuting on 75 miles of area highways. Access the real-time traffic information component at the Scout Web site: http://www.kcscout.net/kcatis/index.html.

Solving the 'Dilemma Zone' Problem

One of the major difficulties with traffic signal operation on high-speed approaches is related to dilemma zones, areas where drivers cannot stop their vehicles normally before an intersection or pass through it normally upon seeing the traffic signal turn yellow. Texas DOT is sponsoring studies to develop systems that alleviate difficulties faced by motorists in dilemma zones. Read more at http://rip.trb.org/browse/dproject.asp?n=9956.

High-Tech Tunnel Opens to Motorists

Missouri's new Lindbergh tunnel incorporates safety and convenience features unknown to most other tunnels—six computer systems read and control technology in the $50 million structure. Read more in the *St. Louis Post-Dispatch* at http://www.stltoday.com/stltoday/news/stories.nsf/stlouiscitycounty/story/5A85F9E621559EBA86256F1C00193576?OpenDocument&Headline=High-tech+tunnel+opens+today.

Smart Seat Belts

Manufacturers are developing and installing tensioning systems that tighten the driver's seat belt when a crash is imminent, one of the first applications to use new technology to reach inside the car to protect occupants before an accident occurs. Read the article in *The Detroit News* at http://www.detnews.com/2004/autosinsider/0409/28/b02-286533.htm.

Building a Tool for Proactive Freeway Traffic Management

As part of a new study, researchers will examine techniques and technologies that Texas DOT can use, in conjunction with real-time and archived loop detector data, to forecast if and when traffic conditions are likely to produce incidents. Read more at TRB's Research in Progress site: http://rip.trb.org/browse/dproject.asp?n=9968.